

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference F 04-024-PCT	<div style="display: flex; justify-content: space-between;"> <div style="text-align: center;">FOR FURTHER ACTION</div> <div style="text-align: right; font-size: small;">see Form PCT/ISA/220 as well as, where applicable, item 5 below.</div> </div>
International application No. PCT/JP2004/005851	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;">International filing date (<i>day/month/year</i>) 23. 04. 2004</div> <div style="width: 45%;">(Earliest) Priority Date (<i>day/month/year</i>) 06. 05. 2003</div> </div>
Applicant TERUMO KABUSHIKI KAISHA	

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 5 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2. ☐ Certain claims were found unsearchable (see Box No. II)

3. ☒ Unity of invention is lacking (see Box No. III)

4. With regard to the title,

☒ the text is approved as submitted by the applicant

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority

6. With regard to the drawings,

a. the figure of the drawings to be published with the abstract is Figure No. 2

☒ as suggested by the applicant

☐ as selected by this Authority, because the applicant failed to suggest a figure

☐ as selected by this Authority, because this figure better characterizes the invention

b. ☐ none of the figures is to be published with the abstract

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Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

Firstly, the relationship between the independent claims 1, 4, 9, and 10 is examined.

Claim 1 relates to "a circulation promoting laser irradiation device needle-less injector" characterized by including "a plurality of laser irradiation means for applying parallel light from different directions on a skin" and "focusing means for focusing on a target portion under the skin". Claims 4 and 9 relate to "a circulation promoting laser irradiation needle-less injector" characterized by including "control means for controlling a plurality of laser irradiation means to apply a laser beam at a time interval."

Claim 10 relates to (Continued to extra sheet)

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☒ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

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A. CLASSIFICATION OF SUBJECT MATTER
Int.Cl.⁷ A61N5/067

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
Int.Cl.⁷ A61N5/067

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Jitsuyo Shinan Koho	1926-1996	Toroku Jitsuyo Shinan Koho	1994-2004
Kokai Jitsuyo Shinan Koho	1971-2004	Jitsuyo Shinan Toroku Koho	1996-2004

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y A	JP 64-64674 A (Matsushita Electric Industrial Co., Ltd.), 10 March, 1989 (10.03.89), Page 1, lower left column, 7th line to 5th line from the bottom; page 1, lower right column, 3rd line from the bottom to page 2, upper left column, line 3; Figs. 1, 3, 4, 7, 8 (Family: none)	1-3 4, 6-10 5
Y A A	JP 11-276499 A (Terumo Corp.), 12 October, 1999 (12.10.99), Claim 1 Par. No. [0031]; Figs. 1, 2 (Family: none)	1-3, 6 4, 5 7-10

☒ Further documents are listed in the continuation of Box C.☐ See patent family annex.

* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search
15 July, 2004 (15.07.04)Date of mailing of the international search report
03 August, 2004 (03.08.04)Name and mailing address of the ISA/
Japanese Patent Office

Authorized officer

Facsimile No.

Telephone No.

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 2001-187157 A (Toshihiko YAYAMA), 10 July, 2001 (10.07.01), Claim 5 & EP 1112758 A2 & US 2001/7078 A1	7
Y A	JP 1-136668 A (Costas Alpha Diamantopoulos), 29 May, 1989 (29.05.89), Page 40, line 5 to page 41, line 9; Fig. 6 & EP 320080 A1 & US 4930504 A	4,6-10 5
Y A	JP 60-114273 A (Fumio INABA), 20 June, 1985 (20.06.85), Claim 1; Figs. 6, 10 (Family: none)	4,6-9 5

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Continuation of Box No.III of continuation of first sheet (2)

"a circulation promoting laser irradiation device needle-less injector" characterized by including "holding means for positioning and fixing the laser beam emission openings of the plurality of laser irradiation means in a radial pattern so that laser beam is concentrated to a target portion under the skin". (Alternatively, claims 4 and 10 relate to "a circulation promoting laser irradiation device needle-less injector" characterized by including "holding means for positioning and fixing the laser beam emission openings of the plurality of laser irradiation means in a radial pattern so that laser beam is concentrated to a target portion under the skin"; and claim 9 relates to "a circulation promoting laser irradiation device needle-less injector" characterized by including "control means for controlling a plurality of laser irradiation means to apply a laser beam at a time interval.")

Accordingly, there exists no technical feature common to claim 1, claims 4, 9, and 10 (claim 1, claims 4, 10, and 9).

Moreover, the "circulation promoting laser irradiation device needle-less injector" disclosed in claim 1 is conventionally known since it is disclosed in document JP 64-64674 A. Claims 1 and 5 have no special technical feature within the meaning of PCT Rule 13.2, second sentence.

Since there exists no other common feature which can be considered as a special technical feature within the meaning of PCT Rule 13.2, second sentence, no technical relationship within the meaning of PCT Rule 13 between the different inventions can be seen.

Consequently, it is obvious that claims 1 and claims 4, 9, 10 do not satisfy the requirement of unity of invention.

Next, the relationship between the inventions of claims 2, 3, 6, 7, and 8 referring to claim 1 is examined.

As has been described above, since the "needle-less injector" disclosed in claim 1 is a known technique and cannot be a special technical feature within the meaning of PCT Rule 13.2, second sentence.

Accordingly, there exists no technical feature common to claims 2, 3, 6, 7, and 8.

Since there exists no other common feature which can be considered as a special technical feature within the meaning of PCT Rule 13.2, second sentence, no technical relationship within the meaning of PCT Rule 13 between the different inventions can be seen.

Consequently, it is obvious that claims 2, 3, 6, 7, and 8 do not satisfy the requirement of unity of invention.

Claim 2 relates to "a circulation promoting laser irradiation device needle-less injector" characterized in that "focusing means is holding means for positioning and fixing the plurality of laser irradiation means."

Claim 3 relates to "a circulation promoting laser irradiation device needle-less injector" characterized in that "a plurality of laser beams are converted into parallel light by a collimator lens."

Claim 6 relates to "a circulation promoting laser irradiation device needle-less injector" characterized in that "the laser irradiation means" have "laser beam generation means" and "an optical fiber".

Claim 7 relates to "a circulation promoting laser irradiation device needle-less injector" characterized in that "the laser beam" has "wavelength of 400 nm to 650 nm".

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Claim 8 relates to "a circulation promoting laser irradiation device needle-less injector" characterized in that "the light energy" is "5 mW or above."